

HOW BATS SEE WITH THEIR EARS

BF 295

H 83

BF 295
H 83



AMERICAN FOUNDATION
FOR THE BLIND INC.

BF295

H 83

C-1

HOW BATS SEE WITH THEIR EARS

HOW can a bat, flying at top speed in a room, know that there is a fine silk thread just ahead of him and turn in time to avoid it? The bat, according to a report in the *New York American* of the investigations of Professor Hamilton Hartridge of Cambridge (England), emits tiny sound waves too high to be audible to human ears. These sound waves send back an echo from all solid objects near by. The bat has peculiarly attuned ears, provided with many external facial appendages and these receive the echoes. The bat may be said to receive a sound picture of surrounding objects. It may be said to "see" with its ears.

Professor Hartridge discovered that the short wave length sounds given forth by the flying bats while near the audible limit of man are really above the limit of most people. The bats, while abnormally sensitive to such sounds, have little or no capacity to hear louder sounds. Working in cooperation with Professor Hartridge, Professor A. Whitaker found that bats were not disturbed when he and others spoke loudly to them but they were greatly disturbed when hands were clapped or paper was torn. The tearing of paper caused the bats to slacken their speed and to flutter.

Bats move their wings very rapidly. They make about ten to twelve strokes in a

second. This produces an extremely high note that is not generally audible to man, but easily becomes so with the aid of a microphone.

This high note strikes all the surrounding objects, becomes modified by their character and size, and is reflected back. These reflections or echoes are received by the bat's ears.

The best naturalists have for years understood that the bat possessed some extraordinary means of guiding its flight, but they failed to understand the true nature of the apparatus. Cuvier thought that the bat's power of finding its way about in the dark was due to an exceptional development of the sense of touch residing in the great delicate membranous expanse of the wings.

It is in the ears and the surrounding parts of the face that the most remarkable developments of the bat are to be found. The different kinds of bats vary greatly as to ears but all have an immense superiority of ear over all other animated forms. The pinnae or outermost parts of the ear are not only quite large but they are movable and most sensitive. These movements and this sensitiveness were never accounted for until these investigations threw light upon a peculiarity of bat behavior which has baffled the scientists of some generations past.



THE MOST EXQUISITELY SENSITIVE OF WINGS AND EARS

Such is the inheritance of the bat, which can find its way between silken threads thro a netted room because of an endowment recently demonstrated as a "miraculous" sense of hearing.

JOHN KEATS AS THE MASTER SPIRIT IN VICTORIAN POETRY

THE poet Keats longed for "a life of sensations rather than of thoughts."

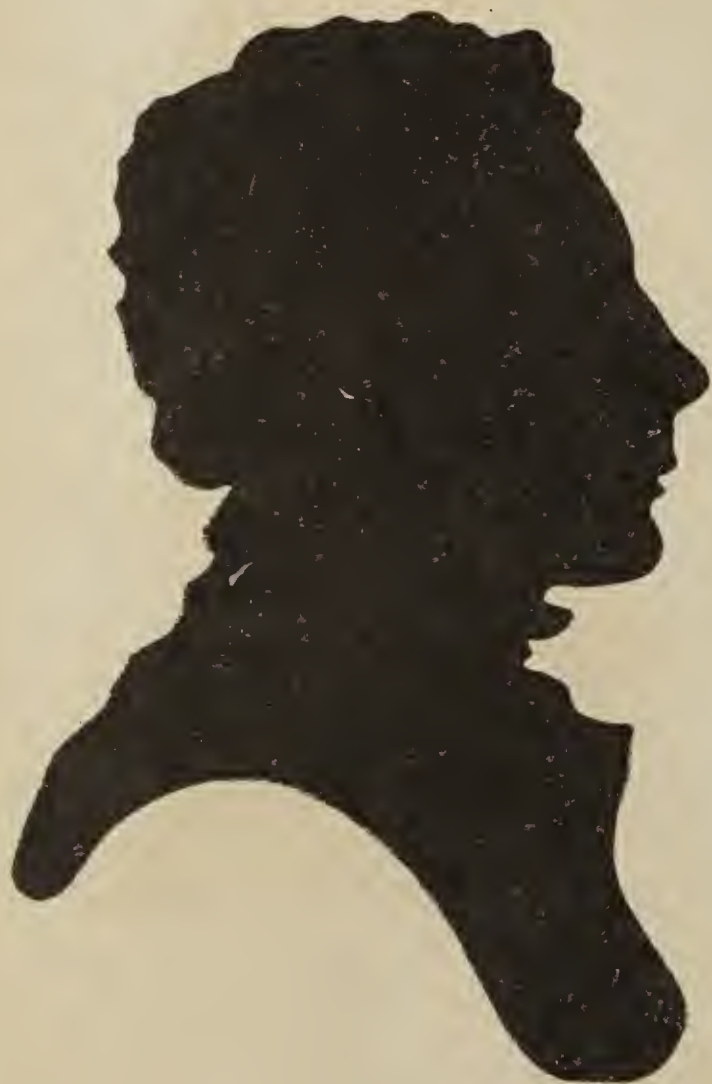
It is partly because his longing was fulfilled that he still speaks to us, after a hundred years, with undeniable intensity. "His life," as William Rose Benét puts it in the *New York Evening Post*, "is the one perfect poet's romance, of a type seeming almost mythical." His verse, once so bitterly attacked, has passed into the very fiber of our tongue. He stands now at the pinnacle of Victorian poetry, second, it may be, only to Shakespeare and Milton in lyrical power. He has deeply affected Tennyson, Browning, Rossetti, Lowell, Lanier and, later, Rupert Brooke. Today his influence is hard to trace because it is everywhere. The *New York World* goes so far as to say that "in this decade's poetry there are but two schools, the modernists on one hand and the followers of Keats on the other." For a poet who died early in his

twenty-sixth year and published only three small volumes, the first appearing only four years before his death, John Keats has cut a wide swath in his century.

The period in which Keats rose to fame was not unlike that in which we are living. A great revolution had burst on the world. A great war had been carried to a successful conclusion. The English people, keyed at first to extravagant hopes, had become disappointed and disillusioned. It must have been something of the spirit of the time, as well as his temperamental bias, that influenced him to adopt the course that he did. If he had not been so discontented with the world in which he found himself, he would not have given himself so completely to the world of his dreams.

Spenser was his first great intellectual enthusiasm. From Shakespeare, Milton and Ariosto he borrowed what he needed. The influence of Homer is sufficiently marked in that sonnet, "On First Looking into Chapman's Homer," which appeared in his first book of "Poems," dedicated to Leigh Hunt and published in 1817. "Endymion" was inscribed to the memory of Thomas Chatterton. His third and greatest book, "Lamia, Isabella, The Eve of St. Agnes, and Other Poems," published in 1820, a year before he died, may be said to derive from Boccaccio, from Chaucer, from medieval and Greek legend, but shows, above all, the shining genius of its author.

Contemporary England was stone-blind to the gifts of this "wonderful lad," who was born in a stable and was destined to be pedestalled among the highest. We speak not only of the brutal attacks of Lockhart in *Blackwood's* and of Gifford in the *Quarterly*, inspired as they largely were by Tory dislike of the liberal group which had welcomed Keats. Even Scott and Byron were at first hostile, while Wordsworth was indifferent. Shelley's magnificent tribute in "Adonais" somehow failed of its proper effect, and Fanny Brawne's egregious remark, "The kindest act would be to let him rest forever in the obscurity to which circumstances have condemned him," added to the confusion. It was not until



"HE IS WITH SHAKESPEARE"

So Matthew Arnold characterized the author of "The Eve of St. Agnes" and the "Ode to a Grecian Urn." Keats lived before the day of the photograph, and is shown here portrayed by one of the famous silhouettists of his time.

BF295
H83

HOW BATS SEE WITH THEIR
EARS.

C.1

Date Due			

BF295
H83

c. 1

HOW BATS SEE WITH THEIR

AUTHOR

EARS.

TITLE

DATE DUE

BORROWER'S NAME

Reference Copy

PAMPHLET BINDERS

This is No. 1524

also carried in stock in the following sizes

	HIGH	WIDE	THICKNESS		HIGH	WIDE	THICKNESS
	inches	inches	$\frac{1}{2}$ inch		inches	inches	$\frac{1}{2}$ inch
1523	9	7	"	1529	12	10	"
1524	10	7	"	1530	12	9 $\frac{1}{8}$	"
1525	9	6	"	1932	13	10	"
1526	9 $\frac{3}{4}$	7 $\frac{1}{8}$	"	1933	14	11	"
1527	10 $\frac{1}{2}$	7 $\frac{3}{8}$	"	1934	16	12	"
1528	11	8	"				

Other sizes made to order.

MANUFACTURED BY
LIBRARY BUREAU

DIVISION OF SPERRY RAND CORPORATION
Library Supplies of all Kinds

